CLAIMS

1. Device for controlling disconnection of the cylinders in internal combustion engines, comprising at least one control device acting on a switchable element for valve actuation of valves and permitting in one of two switching states an actuation of the valve concerned, including transmission devices which, in dependence on a switch over state of the control device, transmit a cam rise produced by a camshaft to the valve provided with the switchable element, and a control unit acting on the control device, wherein the device has a data memory for detection of a time course of movement behavior of the gas exchange valves of the cylinders of the internal combustion engine, and a data processing unit which provides a combination of gas exchange valves into valve groups with regard to a common activation or deactivation, and passes on to the control unit in which an activation or deactivation instant is allocated to the valve groups, and which drives the control device by which the switchable elements for valve actuation of the valves belonging to the valve group are actuated.

2. Device according to claim 1, wherein, for determination of a parameter for selection and allocation of the valves to the valve group, a selection program for coincidence testing control times (20) of the gas exchange valves is present in the data processing unit (22), and therewith a size of a switch over window (18, 19) for simultaneous actuation of selected valves is concluded from a degree of coincidence.

3. Device according to claim 2, wherein a determination of a minimum number of control devices (16, 17) takes place in the selection program of the data

processing unit (22) in dependence on a breadth of the changeover window (18, 19).

4. Device according to claim 1, wherein for a grouping of the valves into a valve group, only those are permitted by the data processing unit (22) which at an instant of driving the switchable elements (7) have the valve actuators in a closed state or at a sufficiently great distance from a beginning of a next cam rise.

5. Device according to claim 1, wherein a hydraulically driven system is provided as the control device (16, 17).

6. Device according to claim 1, wherein the control device includes two control valves (16, 17).

7. Device according to claim 1, wherein at least one intake valve and at least one exhaust valve, which belong to different combustion chambers, are actuated by action of the control device (16, 17) on the switchable elements (7) allocated to the valves.